

## ABSTRACT OF THE DISCLOSURE

The invention provides a series of techniques for processing uranium containing feed materials such as uranium ores, reprocessed uranium, uranium containing residues and uranium containing spent fuel. The processes described involve fluorination of uranium containing material, separation of the uranium containing material from other materials based on ionisation thereof with the non-ionised fluorine containing material being recycled. Metallic uranium and/or plutonium and/or fission products may result. The technique offers advantages in terms of the range of materials which can be reprocessed and a reduction in the number of complexity of stages which are involved in the process.

09869754-091301